Patent
Attorney's Docket No. <u>10009005-1</u>

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of)	**BOX Appeal Brief**
)	
Pere Obrador et al.)	Group Art Unit: 2615
)	
Application No.: 10/023,808)	Examiner: Brian Genco
)	
Filed: Dec. 21, 2001)	
)	
For: CONCURRENT DUAL PIPELINE)	
FOR ACQUISITION, PROCESSING)	
AND TRANSMISSION OF DIGITAL)	
VIDEO AND HIGH RESOLUTION)	
DIGITAL STILL PHOTOGRAPHS)	
)	

<u>APPEAL BRIEF PURUSANT TO 37 C.F.R §41.37</u>

Commissioner for Patents
Alexandria, VA 22313-1450

Sir:

Further to the Notice of Appeal filed on February 7, 2005 in connection with the

above-identified application, submitted herewith is the requisite Appeal Brief and

corresponding fee.

-1-

(i) REAL PARTY IN INTEREST

The real party in interest is the assignee, Hewlett-Packard Company.

(ii) RELATED APPEALS AND INTERFERENCES

To the best of the undersigned's knowledge, there are no related appeals or interferences.

(iii) STATUS OF CLAIMS

Claims 1-24 are currently pending, have all been finally rejected and are all the subject of this appeal.

(iv) STATUS OF AMENDMENTS

No Amendments have been submitted in this application subsequent to the Final Office Action.

(v) SUMMARY OF CLAIMED SUBJECT MATTER

According to exemplary embodiments of the present invention, a dual pipeline architecture provides for concurrent processing of (1) video frames and (2) still images. The dual pipeline architecture may include a video pipeline optimized for digital video and a still image pipeline optimized for high resolution digital still images. When a still image is desired, the video frames can be temporarily buffered while the still image is being acquired. As a result, high resolution still image photographs maybe acquired without any interference with the video recording or any impact on the quality of the video or the still image photographs.

These features of Appellant's invention are found, for example, in claim 1 which recites a method for concurrently acquiring, processing, and transmitting digital video and still images, comprising the steps of:

acquiring video frames from one or more image sensors;

processing the video frames using a video pipeline, wherein the video pipeline includes one or more processors;

temporarily storing the video frames in a frame buffer when one or more high resolution still images are acquired during the video frame acquisition; and

processing the high resolution still images using a still image pipeline, wherein the still image pipeline runs concurrently with the video pipeline.

(vi) <u>GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL</u>

A number of grounds of rejection are raised by the Examiner and listed below.

Appellant requests review of each of these grounds of rejection on appeal.

a. Claims 1, 4-14, 17, 19-21 and 24 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Published Patent Application 2002/0024602 to Juen in view of U.S. Patent No. 5,712,581 to Suh.

b. Claims 2, 3, 15 and 16 stand rejected under 35 U.S.C. §103 over Juen in view of Suh and further in view of Rashkovskiy et al. (U.S. Patent Number 6,181,476).

c. Claims 18, 22 and 23 stand rejected under 35 U.S.C. §103 over Juen in view of Suh and further in view of Okuley (U.S. Patent Publication Number 2003/0112348).

(vii) ARGUMENT

In the Final Office Action, reference is made to Figure 5 of the Juen patent application. The electronic camera illustrated therein, by way of contrast, is based upon an architecture wherein a still image is buffered while video frames are processed, i.e., the opposite of what Appellant is claiming. See, for example, paragraph [0051] of Juen wherein it is stated that:

"..the buffer means 5 ..temporarily stores the image information from the imaging means 1 upon receipt of the command for recording still images when the command for recording is given ...[t]he image compression means 7 waits for completion of recording by the moving image recording means 3 and compresses the image information stored in the buffer means 5."

Unlike exemplary embodiments of the present invention, the cited portion of Juen temporarily stores still image data while processing video image data as opposed to temporarily storing video image data while processing still image data.

This difference between Juen and the claimed combination is recognized in the Final Official Action and is the reason for the citation to Suh. The Final Office Action employs a two step chain of reasoning which is used to modify Juen in view of Suh. Each step is analyzed below.

1. There Would Have Been No Motivation To Add a Buffer to Juen in view of Suh

As a first step in the chain of reasoning, the Final Official Action indicates that it would have been obvious to add another buffer to the system of Juen "in order to enable processing of image data such as DCT". This first modification of Juen is deemed to have been obvious because "Suh discloses to perform various operations on data while it is buffered, such as color correction and compression" and because "Juen also discloses

-5-

performing encoding processes, shown in Fig. 3". Appellant respectfully submits that while these points of argument may be relevant to the issue of whether Juen and Suh are analogous art, they would not have provided one of ordinary skill in the art with a motivation to have combined these two patents in a manner needed to arrive at Appellant's claimed combinations. That is, even assuming arguendo that Juen and Suh do both describe the performance of encoding on image data, that fact, in and of itself, is not a motivation to add a second buffer to the system of Juen.

To the contrary, Appellant respectfully submits that one of ordinary skill in the art, having reviewed the teachings of Juen and Suh would not have been motivated to add another buffer to the system of Juen as set forth in the Final Office Action. Specifically, there would have been no motivation for one of ordinary skill in the art to have made this modification to Juen because Juen already teaches the provision of a buffer 5 for operating in conjunction with encoding processes. See, e.g., paragraph [0052] of Juen wherein it states that:

> "When the still image recording command is externally supplied during the moving image recording period, the buffer means 5 temporarily stores image information from the imaging means 1. In this state, the image compression means waits for the completion of recording of the moving image recording means and compresses the image information stored in the buffer means 5..."

Accordingly, since Juen already teaches the provision of a buffer and since Juen already teaches the performance of encoding processes, it is respectfully submitted that Suh's disclosure of performing various operations on data while it is buffered would not have motivated one of ordinary skill in the art to have added a second buffer to the system of Juen as set forth in the Official Action.

Only Appellant's specification teaches or suggests temporarily storing the video frames in a frame buffer when one or more high resolution still images are acquired during the video frame acquisition. In order to make a § 103 rejection using Juen and Suh, the Final Office Action has to ignore the strong teaching away found in Juen and add a second buffer to Juen, solely because the buffer that is described in Juen does not operate as set forth in Appellant's claims. It is respectfully submitted that nothing found in Suh would have motivated such a change in the system of Juen.

2. No Combination of Juen and Suh Would Have Suggested Temporarily Storing Video Frames "When" One or More Still Images Are Acquired

In the second step of the rejection, once a buffer is added to the system of Juen, the Official Action takes the position that "[s]ince the combination of Juen and Suh teaches to always temporarily buffer the moving image data so as to enable compression processing the moving image frames are temporarily buffered when one or more still images are acquired during moving image capturing. (emphasis added)" *See* page 2, last sentence of Final Office Action. Appellant respectfully submits that, even assuming (strictly *arguendo*) that the addition of another buffer to Juen would have been suggested by the combination of Juen and Suh, nothing in either of these documents teaches or suggests this particular use of a buffer as set forth in Appellant's claimed combinations.

Fundamentally, the Final Official Action is making the argument that the combination of Juen and Suh would "always" buffer video images to perform compression on the incoming video stream and that the claimed feature "temporarily storing the video frames in a frame buffer when one or more high resolution still images are acquired during the video frame acquisition" reads on "always" buffering video frames.

-7-

In this regard, it is respectfully submitted that such an interpretation of Appellant's claimed combinations is not consistent with Appellant's specification and essentially reads out the phrase "when one or more high resolution still images are acquired during the video frame acquisition" from the claimed combinations. As is clear from reading Appellant's specification, buffering of video frames occurs in response to ("when") the acquisition of a still image occurs during video frame acquisition. The hypothetical combination of Juen and Suh proposed in the Official Action to result in "always" buffering moving image data does not teach or suggest at least this feature of Appellant's claimed combinations.

Appellant appreciates the maxim noted in the Advisory Action that "[a]lthough the claims are interpreted in light of the specification, limitations from the specification are not read into the claims". The Final Office Action apparently categorizes Appellant's suggested interpretation of the word "when" as "in response to" as reading a limitation into the claims from the specification. Appellant respectfully disagrees and urges reversal on the ground that such an interpretation is precisely an example of interpreting the claims in light of the specification. In this case Appellant is merely defining the term in a manner which is wholly consistent with the specification and which is consistent with dictionary definitions of the word. *See*, e.g., Merriam-Webster online http://www.m-w.com/cgi-bin/dictionary which includes the definition of "when" used as a conjunction as "**2** : in the event that".

Similar comments apply to, for example, dependent claims 7 and 13. These claims recite, among other things, "emptying the frame buffer by the processors after the high resolution still images are processed, transmitted or stored" (emphasis added). It is respectfully submitted that the combination of Juen and Suh described above also fails to teach or suggest these claimed combinations.
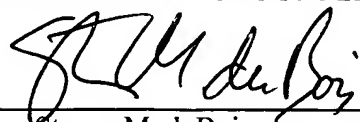
-8-

3. Conclusion to Arguments

Accordingly it is respectfully submitted that the rejection of claims 1, 4-14, 17, 19-21 and 24 under §103 over Juen in view of Suh does not establish a *prima* facie case of obviousness and should be reversed. Claims 2, 3, 15 and 16 stand rejected under 35 U.S.C. §103 over Juen in view of Suh and further in view of Rashkovskiy et al. (U.S. Patent Number 6,181,476). It is respectfully submitted that these dependent claims are allowable for at least the reasons set forth above with respect to the independent claims from which they depend because Rashkovskiy fails to remedy the noted deficiencies of Juen in view of Suh.

Claims 18, 22 and 23 stand rejected under 35 U.S.C. §103 over Juen in view of Suh and further in view of Okuley (U.S. Patent Publication Number 2003/0112348). It is respectfully submitted that these dependent claims are allowable for at least the reasons set forth above with respect to the independent claims from which they depend because Okuley fails to remedy the noted deficiencies of Juen in view of Suh.

For at least the foregoing reasons, it is respectfully submitted that the claims are patentable over the documents cited. Accordingly, it is respectfully requested that the Final Rejection in the Official Action of October 7, 2004 be REVERSED.

Respectfully submitted,

POTOMAC PATENT GROUP PLLC

By: _____

Steven M. duBois
Registration No. 35,023

Date: April 7, 2005

(viii) <u>CLAIMS APPENDIX</u>

1. A method for concurrently acquiring, processing, and transmitting digital video and still images, comprising:

acquiring video frames from one or more image sensors;

processing the video frames using a video pipeline, wherein the video pipeline includes one or more processors;

temporarily storing the video frames in a frame buffer when one or more high resolution still images are acquired during the video frame acquisition; and

processing the high resolution still images using a still image pipeline, wherein the still image pipeline runs concurrently with the video pipeline.

2. The method of claim 1, wherein the processing the video frames step comprises: downsampling and demosaicing the video frames; and color correcting the video frames.

3. The method of claim 1, wherein the processing the high resolution still images step comprises:

downsampling and demosaicing the high resolution still images using complex demosaicing algorithms; and

color correcting the high resolution still images using complex color correction algorithms.

4. The method of claim 1, further comprising compressing the video frames and the high resolution still images.

5. The method of claim 1, further comprising transmitting the video frames and the high resolution still images through communications channels.

6. The method of claim 1, further comprising storing the video frames and high resolution still images in a storage device.

7. The method of claim 1, further comprising emptying the frame buffer by the processors after the high resolution still images are processed, transmitted or stored.

8. The method of claim 1, wherein the processing the high resolution still images step includes processing the high resolution still images using the same image sensors and the same processors in the video pipeline.

9. The method of claim 1, wherein the processing the video frames step and the processing the high resolution still images step include processing the video frames and the high resolution still images using separate hardware processing pipelines.

10. A concurrent dual video and still image pipeline for a video camera system, comprising:

one or more image sensors capable of acquiring video frames and high resolution still images, wherein the high resolution still images are acquired during the video frame acquisition;

a sensor controller capable of storing the video frames into a memory;

one or more processors capable of concurrently processing the video frames and the high resolution still images, wherein the video frames are processed using a video pipeline, and the high resolution still images are processed using a still image pipeline, and wherein the video pipeline runs concurrently with the still image pipeline;

a frame buffer capable of temporarily storing the video frames when the high resolution still images are being processed.

11. The concurrent dual video and still image pipeline of claim 10, further comprising:

a storage device capable of storing the video frames and the high resolution still images.

12. The concurrent dual video and still image pipeline of claim 10, further comprising:

an input/output unit capable of transmitting the video frames and the high resolution still images through communications channels.

13. The concurrent dual video and still image pipeline of claim 10, wherein the frame buffer is emptied after the high resolution still images are processed, transmitted or stored.

14. The concurrent dual video and still image pipeline of claim 10, wherein the processors are selected from a microprocessor, an application specific integrated circuit (ASIC), and a digital signal processor.

15. The concurrent dual video and still image pipeline of claim 10, wherein the processors downsample, demosaic, and color correct the video frames.

16. The concurrent dual video and still image pipeline of claim 10, wherein the processors downsample, demosaic, and color correct the high resolution still images using complex algorithms.

17. The concurrent dual video and still image pipeline of claim 10, wherein the video pipeline and the still image pipeline use the same image sensors and the same processors.

18. The concurrent dual video and still image pipeline of claim 10, wherein the video pipeline and the still image pipeline use separate image sensors and separate hardware processing pipelines.

19. The concurrent dual video and still image pipeline of claim 10, wherein the video pipeline and the still image pipeline use the same image sensors and separate hardware

processing pipelines.

20. A computer readable medium providing instructions for concurrently acquiring, processing, and transmitting digital video and high resolution still images, the instructions comprising:

acquiring video frames from one or more image sensors;

processing the video frames using a video pipeline, wherein the video pipeline includes one or more processors;

temporarily storing the video frames in a frame buffer when one or more high resolution still images are acquired during the video frame acquisition; and

processing the high resolution still images using a still image pipeline, wherein the still image pipeline runs concurrently with the video pipeline.

21. A method for processing digital video and still images, comprising the steps of:

acquiring video frames from one or more image sensors;

processing the video frames using a video pipeline, wherein the video pipeline includes one or more processors;

storing the video frames in a frame buffer while one or more high resolution still images are acquired during the video frame acquisition; and

processing the high resolution still images using a still image pipeline,

wherein still image processing, including image compression, performed by the still image pipeline on said one or more high resolution images runs concurrently with video processing, including image compression, performed by the video pipeline on said video frames.

22. The method of claim 21, wherein said one or more image sensors are two image sensors, one of which provides input to said video pipeline and one of which provides input to said still image pipeline.

23. The method of claim 22, wherein said two image sensors have different resolutions.

24. The method of claim 21, wherein said video pipeline and said still image pipeline are separate hardware pipelines.

(ix) <u>EVIDENCE APPENDIX</u>

None.

(x) <u>RELATED PROCEEDINGS APPENDIX</u>

None.

PATENT APPLICATION

ATTORNEY DOCKET NO.   10009005-1

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Pere Obrador et al.   **Confirmation No.:** 4035

Application No.: 10/023,808   **Examiner:** Brian Genco

Filing Date: Dec. 21, 2001   **Group Art Unit:** 2615

Title: CONCURRENT DUAL PIPELINE FOR ACQUISITION, PROCESSING AND TRANSMISSION OF DIGITAL VIDEO AND HIGH RESOLUTION DIGITAL STILL PHOTOGRAPHS

Mail Stop Appeal Brief-Patents
Commissioner For Patents
PO Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF APPEAL BRIEF

Sir:

Transmitted herewith is the Appeal Brief in this application with respect to the Notice of Appeal filed on _2/7/2005._____ .

The fee for filing this Appeal Brief is (37 CFR 1.17(c)) $500.00.

(complete (a) or (b) as applicable)

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136(a) apply.

( ) (a) Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)-(d) for the total number of months checked below:

( )	one month	$120.00
( )	two months	$450.00
( )	three months	$1020.00
( )	four months	$1590.00

( ) The extension fee has already been filled in this application.

(X) (b) Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

Please charge to Deposit Account **08-2025** the sum of ___**$500.00**___. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees. A duplicate copy of this sheet is enclosed.

(X) I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, Alexandria, VA 22313-1450. Date of Deposit:____4/7/2005____
OR
( ) I hereby certify that this paper is being transmitted to the Patent and Trademark Office facsimile number_____ on _____

Number of pages: **18**

Typed Name: Steven M. duBois

Signature:

Rev 12/04 (Aplbrief)

Respectfully submitted,

Pere Obrador et al.

By _____

Steven M. duBois

Attorney/Agent for Applicant(s)
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